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## 1. Introduction

This paper provides an outline of the contents of ecosystem science information from mainly New Zealand sources for the ORH AEEF 2013. There are a number of additional New Zealand and international literature that will be available for the AEEF but are not specifically mentioned in this document.

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## 2. Ecosystems

- Dunn (2013) Ecosystem Impacts of Orange Roughy Fisheries (Unpublished)
    - Gives a background to understanding potential ecosystem impacts of orange roughy fishing.
    - Describes current knowledge of the deepwater ecosystem where orange roughy are found.
    - Provides current knowledge of ecosystem outcomes including prey, predators, competitors and community composition.
    - Discusses management approaches and information needs.
  
  - Knight et al. (2011)
    - Examines the sustainability of New Zealand's deepwater fisheries from an energetics perspective by considering the energetics impacts of fish harvest on the food web.
    - Estimates the fraction of net primary production (NPP) required to support the harvest of New Zealand's (NZ) eight main deepwater species as a means of examining the ecological sustainability of those fisheries in terms of possible food web impacts.
    - About 5% of the carbon produced annual is required to support recent deepwater fish harvests and 7% is required to support all New Zealand fish harvests.
    - the available evidence suggests
    - When compared to ecological parameters of other ecosystems, the evidence suggests that the wider fishery is likely to be classified as sustainably fished.
  
  - Rice (2005)
    - A detailed and comprehensive review of ecosystem impacts of fisheries
    - Considers management objectives, impacts, reference points, and evaluation.
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